

CLAIMS

Claim 1 (currently amended): A process for coating a surface of an automotive vehicle, comprising:

a) providing a surface of an automotive vehicle, the surface being part of a bedliner of the automotive vehicle;

b) contacting the surface to form a coating with a composition comprising:

- i) a first component that includes an isocyanate component including an aliphatic isocyanate as a major portion of the isocyanate component; and
- ii) a second component that is maintained separate from the first component until mixed in a dispenser for application to the surface, the second component including an amine comprised of an amount of at least one aliphatic primary amine and an amount of at least one secondary amine wherein the second component includes at least 40% of an aspartic acid ester by weight;

wherein upon two weeks of water immersion at 32°C, or exposure to 100 % relative humidity at 38°C, the coating exhibits substantially no blistering, dulling or softening or loss of adhesion, and wherein the coating exhibits substantially no blistering, cracking or charring when sag panel tested for two weeks at about 70°C; and

wherein the amount of the at least one secondary amine is between about 40% and about 80% by volume of the second component and the at least one primary amine is between about 10% and about 40% of the second component; and

wherein the coating has a thickness of 1 mm to 10 mm.

Claim 2 (currently amended): A process for coating a surface of an automotive vehicle bed liner, comprising:

- a) providing a surface of an automotive vehicle bed liner;

b) robotically spraying the surface with a composition consisting essentially of:

- i) a first component that includes an isocyanate including an aliphatic isocyanate as a major portion of the isocyanate component;
- ii) a second component that is maintained separate from the first component until mixed in a dispenser for application to the surface, the second component including an amine in an amount so that the amine and the isocyanate are present in an amount of about 1:10 to about 10:1 parts by volume, the amine being comprised of an amount of at least one aliphatic primary amine and an amount of at least one secondary amine; and
- iii) a static controlling agent that includes a potassium salt;

wherein the amount of the at least one secondary amine is between about 40% and about 80% by volume of the second component and the at least one primary amine is between about 10% and about 40% of the second component; and

wherein the isocyanate has a residual monomer level that is less than about 1% by weight; and

wherein the coating has a thickness of 1 mm to 10 mm.

Claim 3 (currently amended): A process for coating a surface of an automotive vehicle bed liner, comprising:

- a) providing a surface of an automotive vehicle bed liner;
- b) robotically spraying the surface with a composition comprising:
 - i) a first component that includes an isocyanate component including an aliphatic isocyanate as a major portion of the isocyanate component; and
 - ii) a second component that is maintained separate from the first component until mixed in a dispenser for application to the surface, the second component

including a secondary amine that is a aspartic acid ester in an amount so that the amine and the isocyanate are present in an amount of about 1:10 to about 10:1 parts by volume, the amine being comprised of an amount of at least one aliphatic primary amine and an amount of at least one secondary amine;

wherein upon two weeks of water immersion at 32°C, or exposure to 100 % relative humidity at 38°C, the coating exhibits substantially no blistering, dulling or softening or loss of adhesion, and wherein the coating exhibits substantially no blistering, cracking or charring when sag panel tested for two weeks at about 70°C; and
wherein the composition forms a polyurea coating; and
wherein the coating has a thickness of 1 mm to 10 mm.

Claim 4 (previously presented): A process as in claim 1 wherein the isocyanate component is present in the composition from about 30% to about 70% by volume and is at least 90% aliphatic by weight and wherein the step of contacting the surface with the composition includes spraying the composition upon the surface and wherein the surface is part of a bedliner of an automotive vehicle.

Claim 5 (canceled)

Claim 6 (previously presented): A process as in claim 4 wherein the composition is contacted with the substrate using an apparatus having a first metering container for receiving the second component, a second metering container for receiving the first component and a nozzle in fluid communication with the first and second containers for spraying the resulting composition.

Claim 7 (original): A process as in claim 1 further comprising adding into the composition a light stabilizer for assisting the coating in resisting degradation due to exposure to light.

Claim 8 (previously presented): A process as in claim 4 further comprising adding into the composition an effective amount of an agent for controlling static.

Claim 9 (original): A process as in claim 1 further comprising adding into the composition a thixotropic agent.

Claim 10 (original): A process as in claim 1 wherein at least a portion of the isocyanate component is selected from the group consisting of dicyclohexylmethane 4,4'-diisocyanate, isophorone diisocyanate, tetramethyl-1,3-xylylene diisocyanate, hexamethylene diisocyanate.

Claim 11(original): A process as in claim 2 wherein the resulting coating exhibits substantially no blistering, cracking or charring when sag panel tested for two weeks at about 70° C.

Claim 12 (original): A process as in claim 2 wherein upon two weeks of water immersion at 32°C, or exposure to 100 % relative humidity at 38°C, the coating exhibits substantially no blistering, dulling or softening or loss of adhesion, and wherein the coating exhibits substantially no blistering, cracking or charring when sag panel tested for two weeks at about 70°C.

Claim 13 (original): A process as in claim 2 wherein the second component includes at least 40% of an aspartic acid ester by weight.

Claim 14 (original): A process as in claim 13 wherein at least a portion of the isocyanate component is selected from the group consisting of dicyclohexylmethane

4,4'- diisocyanate, isophorone diisocyanate, tetramethyl-1,3-xylylene diisocyanate, hexamethylene diisocyanate.

Claim 15 (original): A process as in claim 14, wherein the composition further includes a polyoxyalkylenamine.

Claim 16 (canceled)

Claim 17 (original): A process as in claim 3 wherein at least a portion of the isocyanate component is selected from the group consisting of dicyclohexylmethane 4,4'- diisocyanate, isophorone diisocyanate, tetramethyl-1,3-xylylene diisocyanate, hexamethylene diisocyanate.

Claim 18 (original) : A process as in claim 3 further comprising adding into the composition an effective amount of an agent for controlling static.

Claim 19 (original): A process as in claim 3 wherein the automotive vehicle is a pick-up truck,

the composition further includes an agent for controlling static, and

the composition is contacted with the substrate using an apparatus having a first metering container for receiving the second component, a second metering container for receiving the first component and a nozzle in fluid communication with the first and second containers for spraying the resulting composition.

Claim 20 (original): A process as in claim 3 wherein the composition further includes a polyoxyalkylenamine, and one or more additional ingredients for functioning as a catalyst, stabilizer, pigment, fire retardant or other performance or property modifier.

Claim 21 (previously presented): A process as in claim 1 wherein the at least one primary amine is present in an amount up to about 50 parts by volume of the second component.

Claim 22 (previously presented): A process as in claim 4 wherein the at least one primary amine present has a molecular weight greater than about 200 and the at least one secondary has a molecular weight of at least about 190.

Claim 23 (previously presented): A process as in claim 22 wherein the isocyanate component has a residual monomer level that is less than about 1% by weight.

Claim 24 (previously presented): A process as in claim 2 wherein the at least one primary amine is present in an amount up to about 50 parts by volume of the second component.

Claim 25 (previously presented): A process as in claim 2 wherein the at least one primary amine present has a molecular weight greater than about 200 and the at least one secondary has a molecular weight of at least about 190.

Claim 26 (canceled)

Claim 27 (previously presented): A process as in claim 3 wherein the at least one primary amine is present in an amount up to about 50 parts by volume of the second component.

Claim 28 (previously presented): A process as in claim 3 wherein the at least one primary amine present has a molecular weight greater than about 200 and the at least one secondary has a molecular weight of at least about 190.

Claim 29 (previously presented): A process as in claim 3 wherein the amount of the at least one secondary amine is between about 40% and about 80% by volume of the second component and the at least one primary amine is between about 10% and about 40% of the second component.

Claim 30 (previously presented): A process as in claim 23 wherein the agent for controlling static is a metal salt.

Claim 31 (canceled)

Claim 32 (previously presented): A process as in claim 2 wherein:

- i) the amount of the at least one secondary amine is between about 40% and about 80% by volume of the second component and the at least one primary amine is between about 10% and about 40% of the second component;
- ii) the isocyanate has a residual monomer level that is less than about 1% by weight; and
- iii) the second component includes at least 40% of an aspartic acid ester by weight.

Claim 33 (previously presented): A process as in claim 1 wherein the second amine is an ester-based amine functional reactive resin having a mole ratio of amine functionality to ester of no more than 1:1.

Claim 34 (previously presented): A process as in claim 1 wherein the composition includes potassium salt as a static controlling agent.

Claim 35 (previously presented): A process as in claim 1 wherein the composition includes a thixotropic filler that includes fumed silica.

Claim 36 (previously presented): A process as in claim 2 wherein:

- i) the second amine is an ester-based amine functional reactive resin having a mole ratio of amine functionality to ester of no more than 1:1;
- ii) the composition includes a static controlling agent selected from potassium salt or carbon black; and
- iii) the composition includes a thixotropic filler that includes fumed silica.